REMARKS

Claims 1-25, 27-32, 35-39 and 42-44 are pending in this application. Claims 26, 33-34, 40-41 and 45-46 have been cancelled. The Examiner has rejected claims 1-25, 27-32, 35-39 and 42-44.

The final Office Action of July 6 2009 has been carefully considered. It is respectfully submitted that all issues raised are traversed, being hereafter addressed with reference to the relevant headings appearing in the Detailed Action section of the Office Action.

Claim 47 has been amended.

CLAIM REJECTIONS

Claim Rejections – 35 USC § 103(a)

The Examiner has rejected claims 1-20, 22-25, 27-30, 32, 35-39, 42-44 and 47 as being unpatentable over Hanagan (US 2001/0056362) in view of Gangopadhyay (US 6,973,638). Furthermore, the Examiner has rejected claims 21 and 31 as being unpatentable over Hanagan and Gangopadhyay in view of Rigole (US 7,139,728 B2).

Hanagan shows a system including a set of components for use in a customer care and billing system. These components may be integrated so that the components work together, with each component performing a well defined element of the overall customer care and billing system functionality. For example, Hanagan describes components such as the Customer Care Manager, Customer Billing Manager, Order Processing and Product and Services Manager. The system is modular in that particular ones of the components may be omitted or replaced by legacy components with equivalent functionalities, depending on the specific requirements for a particular instance of a customer care and billing system.

However, the system of Hanagan has a fixed or static configuration, in that interconnections between the components are predetermined by the architecture of the system. For example, with reference to Figure 1 of Hanagan, it can be seen that the Financial Event Engine only communicates with the Customer Billing Manager and the Customer Care Manager, and cannot communicate with other systems. Although other examples of the system show the functionality of one or more components carried out by legacy systems instead of the components defined by Hanagan, the interconnection between components are still predetermined, such that each component only ever communicates with the same other components or an equivalent legacy system.

In other words, the system of Hanagan has a fixed model which allows parts to be substituted. Since the model is fixed, the interface for a part that can be substituted can be well described.

Due to the static architecture of the system, the interconnections between components are inherently pre-defined, such that the interconnections do not need to be defined by a user for a specific instance of the system. Furthermore, as a result of this, each interconnection will involve communication using well known data types. This is because the nature of the communication between each component is an element of the overall design of the system.

It should also be noted that the functionality of a legacy system in the context of the overall system will be the same as the component that the legacy system replaces. Accordingly, the overall operation of the system will not change if a legacy system is used as a substitute for a component of the system for performing that functionality.

In specific examples described by Hanagan, the Order Processing component accepts requests for work, and determines tasks required to complete the request. The Order Processing component then automates the scheduling and processing of the tasks, for example passing on activation requests to network elements. However, each request sent to a component or network element does not need to include an indication of the interconnections

of the respective component, since the interconnections of each component are already predetermined by virtue of the static configuration of the system.

In contrast to the system described by Hanagan, the claimed invention relates to obtaining a service using a combination of components with interconnections that are not predetermined. This allows for a dynamic configuration of components and interconnections, in order to obtain services made up of sequences of service portions provided by a combination of components. The particular combinations and interconnections may not have been previously envisaged. Accordingly, when a user defines interconnections between components, each component could be connected to components to which they have not before been connected. Therefore the components of the claimed invention need to have flexibility in how they are able to be interconnected.

If multiple different types of components are available for combination, it will be appreciated that there will be a considerable number of possible combinations of components, and therefore the interconnections between components can not be standardized. Rather, the interfaces must be flexible and adaptable to any component combination that may be encountered.

It will be appreciated from the above that in the claimed invention, when a service request is transferred to a component to allow the component to be used, as the component could be connected to any other component depending on the user defined interconnections, the service request therefore includes an indication of the interconnections thereby allowing the component to determine to which other components it should be connected.

With regards to claim 1, the Examiner has asserted that Hanagan shows the feature of claim 1 which specifies that "*a service request is transferred to each entity requesting the respective service portion to be performed, wherein each service request includes an indication of the interconnections of the respective component*".

In the rejection of claim 1, the Examiner refers to paragraphs [0089] and [0090] of Hanagan, which describe a specific scenario in which the components of Hanagan are integrated with existing/legacy components. However, in light of the discussion above, the Applicant submits that this scenario does not disclose or even suggest that "*each service request includes an indication of the interconnections of the respective components*".

In particular, it is clear that the components of Hanagan have a static architecture in which components can only communicate with predetermined other components. If a request is made to implement a component in the system described by Hanagan, the request would not need to include an indication of the interconnections of the respective component, since the interconnections between components are static and defined by the system architecture.

In view of this, we do not believe that Hanagan shows that "*each service request includes an indication of the interconnections of the respective component*".

Furthermore, the claimed invention is provided to allow a component combination to be determined defining a sequence of service portions, so that the user can obtain desired services by selecting appropriate components and then defining interconnections so that when the service portions are implemented in accordance with the user defined interconnections, the required service is provided. As discussed above, this approach offers a level of flexibility in the obtainable services that was not envisaged by Hanagan.

It is therefore submitted that the functionality of the claimed invention could not be achieved using the static configuration of Hanagan.

The Examiner has acknowledged that Hanagan does not show the feature of claim 1 of "*one or more user defined interconnections*", although the Examiner has asserted that this is disclosed by Gangopadhyay. In making this assertion, the Examiner specifically refers to column 2, lines 15-23 and Figure 3 of Gangopadhyay as showing the "*user defined interconnections*".

Gangopadhyay describes the user creating a graphical representation of processes, wherein action nodes are connected by event links. The graphical representations are essentially 'event tree' diagrams, and the event links indicate the occurrence of a single outcome out of one or more possible outcomes, representing a single event in a sequence of events, and not the transfer of data. It should be noted that claim 1 requires that the "*user defined interconnections*" define "*transfer of data between the entities of the respective components*". It is respectfully submitted that a user defined event link is not equivalent to an interconnection that defines transfer of data between components as required by claim 1, and therefore it is submitted that Gangopadhyay does not disclose "*user defined interconnections*" in accordance with the claims.

Regarding the combination of Hanagan and Gangopadhyay, the Examiner has asserted that Hanagan discloses teachings related to providing user definable services and Gangopadhyay discloses a method for a user to define a service, and therefore has asserted a skilled person would have modified the system of Hanagan to include support for user defined interconnections of components as per Gangopadhyay.

The Examiner has also argued that the motivation to combine the references would come from preserving modularity, by allowing a user to define connections and keep existing components when desired, and a user could choose to keep satisfactory components and define the interconnections between legacy components and new components as desired, if the references were combined. However, as discussed above, the event links described in Gangopadhyay do not indicate interconnections of components, but the flow of events, and it is respectfully submitted that modifying Hanagan to allow a user to model an event flow would not help to preserve modularity or ease the integration of legacy and new components.

In addition, Hanagan already shows an example of integration with existing/legacy components and we respectfully submit that a skilled person would not consider Gangopadhyay as being relevant to this particular functionality, as Gangopadhyay does not

mention any possible use in integrating legacy components. Furthermore, the standardized interfaces described by Hanagan appear to be capable of enabling the modular functionality without requiring user definition of the interconnections, and it is therefore submitted that user defined interconnections would be redundant in light of the static architecture describe by Hanagan. The standardized interfaces allow legacy systems to be substituted for components of the system without requiring any interconnections to be defined. Accordingly, it is respectfully submitted that a skilled person would not be motivated to consider allowing the user to define interconnections graphically as per the Examiner's reasoning.

Even in the event that a skilled person was motivated to combine the teachings of Hanagan with Gangopadhyay, it is submitted that such a combination would not work to provide a flexible method of allowing a user to obtain a service using component combinations, as claimed. Specifically, if the teaching of Gangopadhyay regarding user defined links was applied to modify the system described in Hanagan, such a modification would not provide the claimed functionality.

As discussed in detail above, the interconnections between components in Hanagan are predetermined and static such that certain components can only communicate with certain other components. Each component is configured to provide a particular function, such as customer care management, and only particular communication between other components are required in order to perform the function, which is already established by virtue of the static architecture and predetermined interconnections. If the system of Hanagan was modified to allow user defined links as per Gangopadhyay, it is submitted that the components of Hanagan would not be appropriately configured to allow any interconnections other than those that are predetermined by the static architecture, and therefore the user defined interconnections would not work to provide any further functionality beyond the original design of Hanagan.

For example, even if the user wished to define an interconnection between the Event Rater and Pricer 16 and the Financial Event Engine 20 shown in Figure 1, such an interconnection

could not work, since the components would not be appropriately designed for that interconnection. Furthermore, nothing in Gangopadhyay teaches how components of Hanagan may be modified to allow interconnections other than those previously defined by the static interconnections of Hanagan.

In contrast, the claimed invention allows components to be dynamically interconnected based on user defined interconnections, and we respectfully submit that this could not be achieved in Hanagan, even in light of Gangopadhyay. Consequently, even considering Hanagan, in light of Gangopadhyay, there is nothing to teach or suggest that the work request of Hanagan would include an indication of the interconnections of the components to be implemented.

Accordingly, it is submitted that due to the static architecture of Hanagan, there is no way that the teaching of Hanagan could be modified in light of teachings of Gangopadhyay that would result in a method of dynamically combining components as claimed. Accordingly, it is respectfully submitted that the features of claim 1 would not have been obvious from a combination of Hanagan and Gangopadhyay.

Similar arguments apply to claims 24, 27, 32, 35, 39, 42 and 44, which recite similar distinguishing features as those discussed above with respect to claim 1.

Regarding claim 12, the Examiner has asserted that each component is implemented by a component processing system, because each component of Hanagan can function independently. The Examiner refers to paragraph [0081] as disclosing the features of claim 12. However, the Applicant submits that this identified section of Hanagan does not disclose or even suggest that the components are implemented by separate component processing systems, and instead, this section discusses examples of the Order Processing component being used to activate network elements.

The Examiner has also referred to Hanagan paragraph [0054] in response to the Applicant's previously submitted arguments in relation to claim 12. This paragraph of Hanagan relates to

the ability of the components to function independently, and the Examiner has asserted that this means that each component is implemented by a processing system. However, we respectfully submit that this is not the case. Although Hanagan mentions "independent" components, Hanagan does not disclose or even suggest that components are implemented by separate component processing systems. The components of Hanagan are described as being independent with respect to the "necessary processes and inputs and outputs to function independently", but Hanagan gives no disclosure as to whether the components may be implemented on separate component processing systems, and it is respectfully submitted that a skilled person would not infer this to be the case upon reading Hanagan.

Regarding claim 47, which relates to agents that negotiate with agents of other components, the Examiner has interpreted the standardized interface disclosed in Hanagan as also being equivalent to an agent, and has asserted that the limitations of claim 47 are shown.

Hanagan describes that the interconnections between components are by way of standardized interfaces, which are introduced in paragraph [0087] as follows:

"Because each component must also enable ease of integration with legacy systems, standardized interfaces are provided for each component, where the interface includes all information that is needed by the sending and receiving system. All interfaces are built into the invention object model as separate objects."

It is submitted that a skilled person would understand that these standardized interfaces are provided so that the components can communicate with another component (based on the static interconnections) or an equivalent legacy system. For example, a legacy component can be integrated into the system of Hanagan using a standardized interface (such as per the specific example in paragraph [0090]), so that the legacy component can communicate with another component without requiring modification. In other words, the interfaces are standardized based on the nature of the legacy system to allow the component to interpret data received therefrom or provide data thereto.

Hanagan explicitly describes that the standardized interfaces are provided to ease integration. A skilled person would therefore realise that the aim of using standardized interfaces is to enable the overall system to perform its customer care and billing functionalities regardless of whether new components or legacy systems are used to perform the underlying functions.

We respectfully submit that the Examiner appears to have attributed claimed functionalities to the standardized interfaces of Hanagan which are not explicitly described or even suggested, but have generally been inferred by the Examiner without justification. For example, the Examiner has asserted that the standardized interfaces represent interconnections which define the transfer of data between the entities of the respective components (claim 1), are equivalent to agents which can cooperate with other agents (claim 16), and that they can also negotiate with agents of other components (claim 47). However, Hanagan is silent as to the actual configuration of the standardized interfaces, other than the description of paragraph [0087] duplicated above. It is submitted that Hanagan does not provide sufficiently enabling disclosure to allow a skilled person to carry out the claimed functionalities of claim 1, 16 and 47.

In any event, the communication between components in Hanagan relies on the static architecture defining the components and the predetermined interconnections between them, and each component is specifically designed to allow communications along those predetermined interconnections. The use of standardized interfaces does not alter this fact; rather the standardized interfaces merely provide a way to easily integrate legacy components into the system, without necessitating redesign of the legacy components. Accordingly, the standardized interfaces are configured to allow communication with component in a standard way. It follows that the data types or formats for data transfer between the standardized interfaces would themselves be standardized.

On the other hand, claim 47 requires that each agent negotiates with the agent of another component. In order to further define how each agent negotiates with the agent of another component, claim 47 has been amended to recite that:

"*each agent negotiates with the agent of another component in accordance with the defined interconnections to select between available data types and formats and to thereby allow data to be transferred between the ports.*"

Support for this amendment can be found at page 17, lines 18-22 of the original specification.

This allows components to negotiate to choose a common data type or data format that both components are able to use to communicate. This common data type or format may vary depending on what components are connected. In contrast, Hanagan enforces compliance with standard formats to ensure that common types/formats are used by each component, legacy or otherwise, without requiring any negotiation to occur to enable the data transfer. Therefore it is respectfully submitted that negotiation "*to select between available data types and formats*" is not disclosed or suggested by Hanagan, nor could such negotiation inherently take place in a system as described by Hanagan.

Accordingly, it is respectfully submitted that Hanagan does not show the features of claim 47, and therefore claim 47 is novel and non-obvious over Hanagan.

In view of the above amendments and remarks, applicant respectfully requests that this application be reexamined and that the claims, as amended, be allowed.

The Commissioner is hereby authorized to charge the amount of $65.00 as payment for an One-Month Extension of Time fee, small entity, to Deposit Account No. 07-1896. The Commissioner is further authorized to charge any additional fees that may be due, or make any credits, to Deposit Account No. 07-1896 referencing the above-identified attorney docket number.

Respectfully submitted,

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/J.D. Harriman/

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